Chapter 8 quiz 2, December 1, 2011. 15 minutes.

Q1. Pairs of P-values and significance levels, α, are given below. For each pair, state whether H_0 would be rejected at the given significance level.

1. P-value: .084, $\alpha = .05$
2. P-value: .003, $\alpha = .001$
3. P-value: .498, $\alpha = .05$
4. P-value: .084, $\alpha = .10$
5. P-value: .039, $\alpha = .01$
6. P-value: .218, $\alpha = .10$

Q2. The paint used to make lines on roads must reflect enough light to be clearly visible at night. Let μ denote the true average reflectometer reading for a new type of paint under consideration. A random sample of size 9 from a normal population distribution is obtained, with $\overline{x} = 22$ and $s = 3.2$. Test $H_0 : \mu = 20$ versus $H_a : \mu > 20$ at significance level $\alpha = 5\%$ following the steps below.

1. The hypotheses are:

2. Define a test statistic:

   $T =$

3. The null distribution of the test statistic is:

   $T \sim$

4. The value of T based on the data is

   $T^* =$

5. The P-value is:

6. Conclusion: